

Appendix A

Detailed Description of the Methods Used to Characterize the Lithology Underlying the INEEL CERCLA Disposal Facility (ICDF)

Appendix A

Detailed Description of the Methods Used to Characterize the Lithology Underlying the INEEL CERLA Disposal Facility (ICDF)

A-1. Methods Used to Characterize Lithology

The lithology penetrated by the wells at Idaho Nuclear Technology and Engineering Center (INTEC) was determined by using geologic and geophysical data. The geologic data were obtained from drill rig geologists' records and, where available, down-hole video logs and core or drill cuttings. The geophysical data were obtained from the U.S. Geological Survey (USGS) well logging program. When the geophysical data are combined with the geologic data, lithologic descriptions can be given with a good degree of confidence.

The lithologic features of particular interest are weathering, fracturing, vesicularity, color, grain or crystal size, bedding, sorting, and rock type. These features indicate position within a flow or sediment unit and may, in some cases, be correlated with similar features penetrated by other boreholes.

A-1.1 Geologic Methods

The geologic methods used to determine the lithologic features previously listed rely heavily on the geologists' descriptions of core and drill cuttings, as well as an understanding of how different geologic environments affect actual drilling operations.

The most reliable source of geologic data is from core. A geologist using a standardized method of rock description describes the core. Core collected at the INTEC facility during the tenure of Westinghouse Idaho Nuclear Company (WINCO) was logged to the WINCO Environmental Restoration Project Directive 1.33 "Geologic Logging," (ER PD 1.33) logging standard. The core descriptions include a complete and detailed description of weathering, structures, color, grain size, strength, and rock type as well as core recovery, a rock quality index, and fracture density.

The lithology of individual coreholes was determined from first physically examining the core and specifically logging all fractures, weathering, interbeds, and inferred flow unit breaks. All cores from drilling projects prior to the year 2000 drilling project were physically relogged at the USGS Lithologic Core Archive Library located at the Central Facilities Area. For the A-A' cross-section, this included the cores from USGS-123 and all six of the perched water (PW) wells. Core from the year 2000 drilling project percolation pond well set was examined during drilling by the rig geologist for obvious flow unit breaks and was reexamined through the use of core photographs during this interpretation.

This stratigraphic interpretation is based mostly on wells where physical core has been collected and examined. The archived core is stored at the USGS core library located at the Central Facilities Area.

The lithology of core from USGS-123 was used for the primary control on the A-A' cross-section. The lithology was determined by carefully examining the core and by using the geophysical logs to establish vertical control where core was not recovered. The core was examined to provide the initial lithologic descriptions and relate the geophysical responses found in the natural-gamma and neutron logs to the specific lithology in the corehole. Additionally, detailed subsampling and description of the petrology, paleomagnetism, and radiometric dates of the corehole were provided in Lanphere et al. (1993).

Lithologic units were extended through the USGS cable tooled boreholes after examining the core from the coreholes located on the section line. Anderson (1991) stratigraphic units were used in the USGS cable tooled boreholes.

Other geologic data sources that were used include drill cuttings, observation of drilling, and the down-hole video. Drill cuttings provide an estimate of weathering, color, vesicularity, fracture filling materials, and rock type, all of which are recorded by the rig geologist. In addition to sample descriptions, observing the drill rig provides information on fractures, rock strength and consolidation, and rock type (i.e., interbed sediments versus basalt). A down-hole video log provides information on fracture density and orientation. The information recorded by the drill rig geologist is used in conjunction with a down-hole video camera to provide a fair record of the lithology penetrated by the borehole.

A-1.2 Geophysical Methods

The borehole geophysical methods used to determine the lithologic features include natural-gamma logs, neutron logs, density or gamma-gamma logs, and caliper logs. The natural-gamma and neutron logs are the primary sources of geophysical data.

A-2. Significant Stratigraphic Units

- The base of the surface sediments: The base of the surface sediments is included, because it is easily identified in all boreholes from the drillers' and geologists' logs and also from the geophysical logs. The base of the surface sediments provides an upper bound for the stratigraphic interpretation. It is defined as the contact between the uppermost basalt flow and the overlying sediments.
- CD Basalt Flow: The CD basalt is characterized by a higher-than-average natural-gamma count. The CD basalt flow is typically absent from the east and southeast extremes of the INTEC, but where it is present, it is easily distinguished by the unusual natural-gamma signature and provides a marker horizon in the upper regions of the stratigraphic column.
- DE5 Basalt: The DE5 basalt is among the thickest and most massive basalt flows found in the INTEC subsurface, with a typical thickness of nearly 100 ft. The base of the unit appears to be relatively flat-lying, while the upper surface of the unit has a south-to-southwest slope. The upper surface may also have several depressions across the INTEC area. The unit is greatest in thickness near the INTEC sewage lagoons and thins as the distance from the sewage lagoon increases. The unit is distinguishable in coreholes by its massive structure and in geophysical logs by its generally low-moisture neutron signature. The base of the DE5 basalts overlies a series of thin basalt flows and sediments that make up the DE6 and DE7 stratigraphic units. These sediments are the last significant set of sediments in the stratigraphic column above the top of the Snake River Plain Aquifer.

A-3. References

- Anderson, S. R., 1991, *Stratigraphy of the Unsaturated Zone and Uppermost Part of the Snake River Plain Aquifer at the Idaho Chemical Processing Plant and Test Reactors Area, Idaho National Engineering Laboratory, Idaho*, USGS Water-Resources Investigations Report 91-4010, DOE/ID-22095, January, 71 p.
- Lanphere, M. A., Champion, D. E., Kuntz, M. A., 1993, *Petrography, Age, and Paleomagnetism of Basalt Flows in Coreholes Well 80, NRF 89-04, NRE 89-05, and ICPP 123, Idaho National Engineering Laboratory, Idaho*, U.S. Geological Survey Open File Report 93-327.

THE CONTENTS OF THIS SECTION ARE
THE HIGHEST QUALITY AVAILABLE

INITIAL KH DATE 9/30/02

Appendix B

Lithologic Logs and Geophysical Logs for PW Series Perched Water Wells and Aquifer Wells in the Vicinity of the ICDF Complex



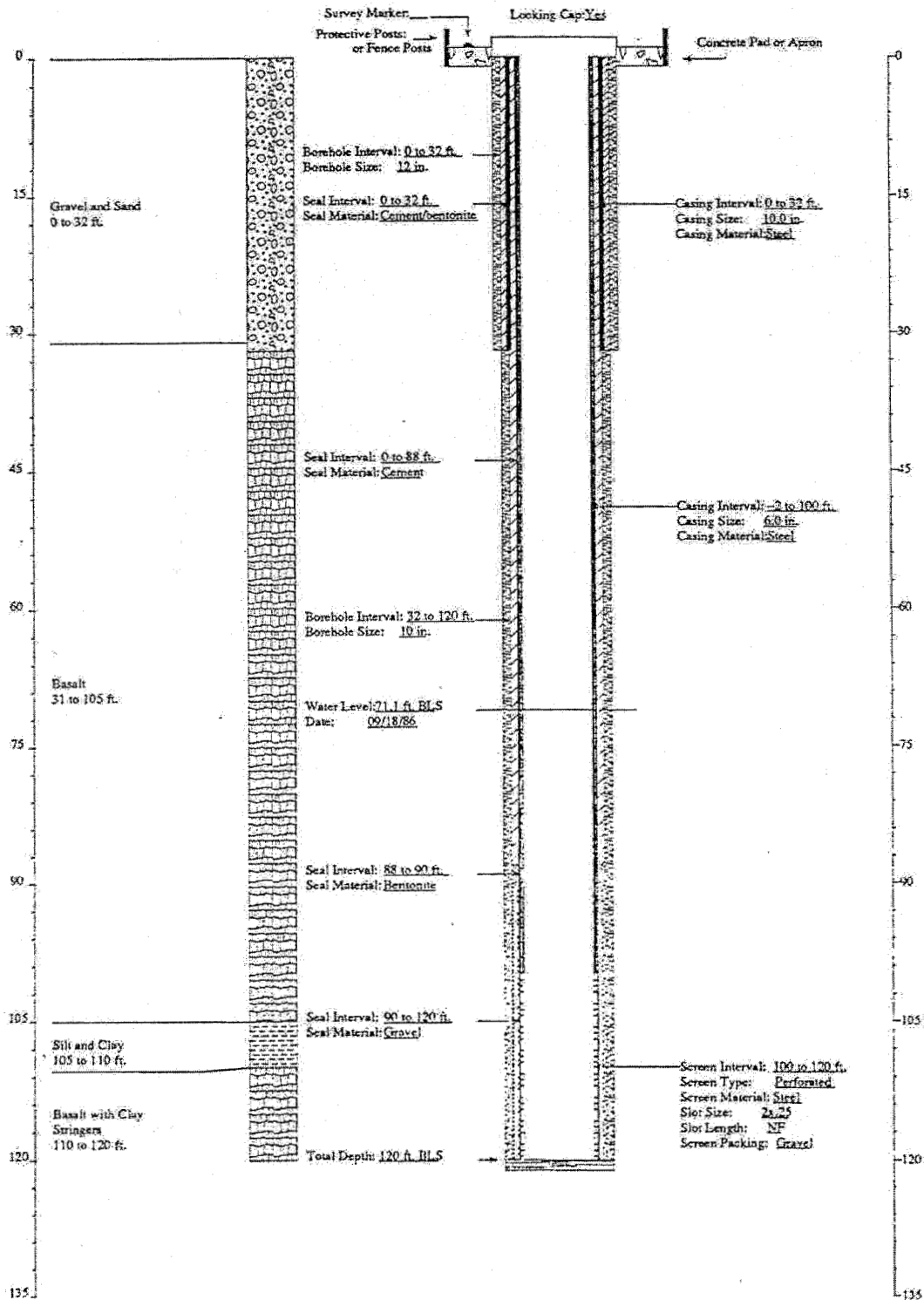
WellName: PW-1

Facility: CPP
Well Type: Monitoring Well
Well Status: Active
Year Drilled: 1986
Total Depth: 120

Easting: 497556.65
Northing: 816073.43
Longitude: 1124606.540
Latitude: 435415.519
Completion Depth: 120

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4900.67

06/30/1993
Water Level: 71.1
Water Level Date: 09/18/86
Water Level Access: NF



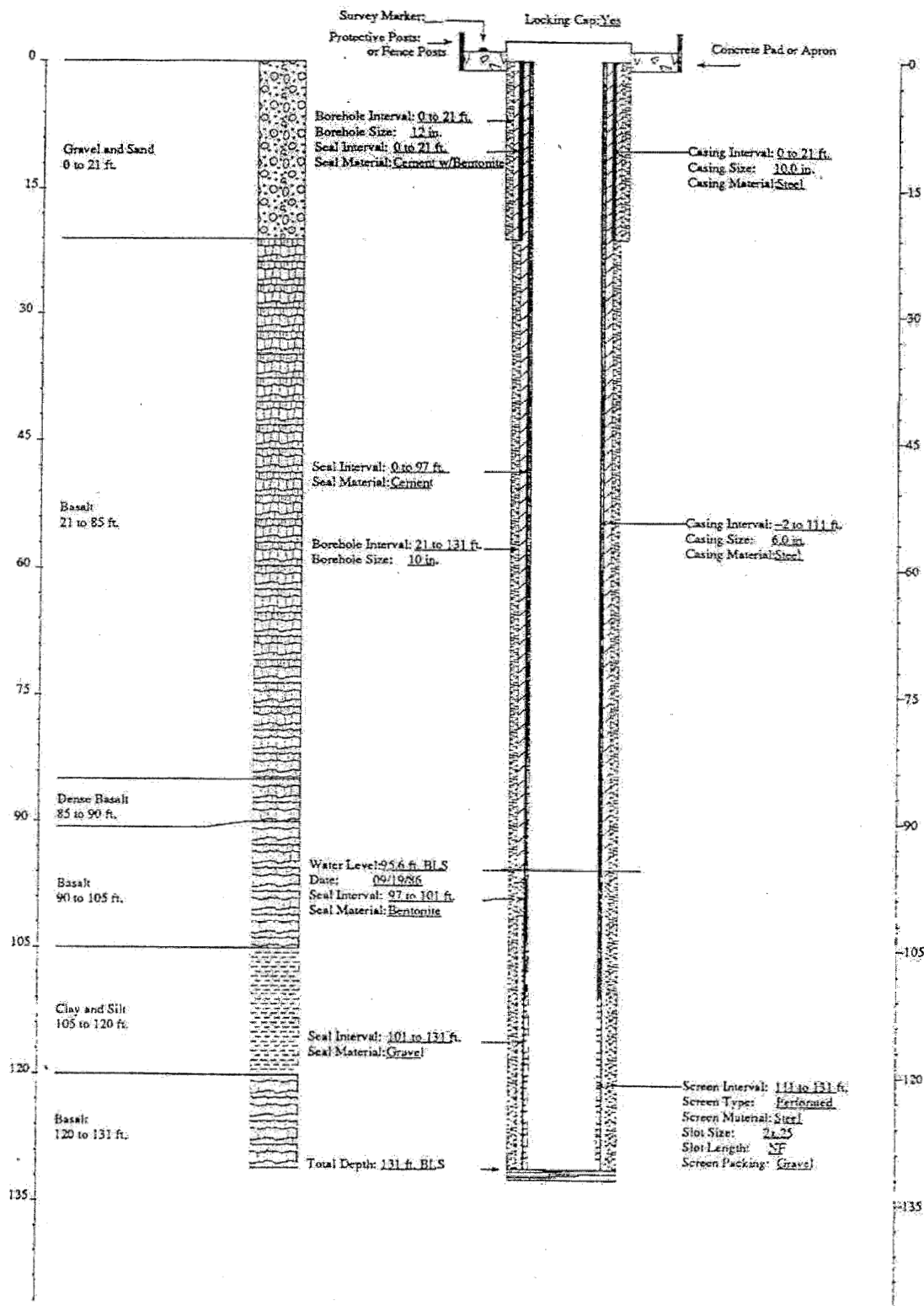
WellName: PW-2

Facility: CPP
Well Type: Monitoring Well
Well Status: Active
Year Drilled: 1987
Total Depth: 131

Easting: 499956.91
Northing: 816374.80
Longitude: 1124533.785
Latitude: 435418.667
Completion Depth: 131

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4896.29

07/01/1993
Water Level: 95.6
Water Level Date: 09/19/86
Water Level Access: NF



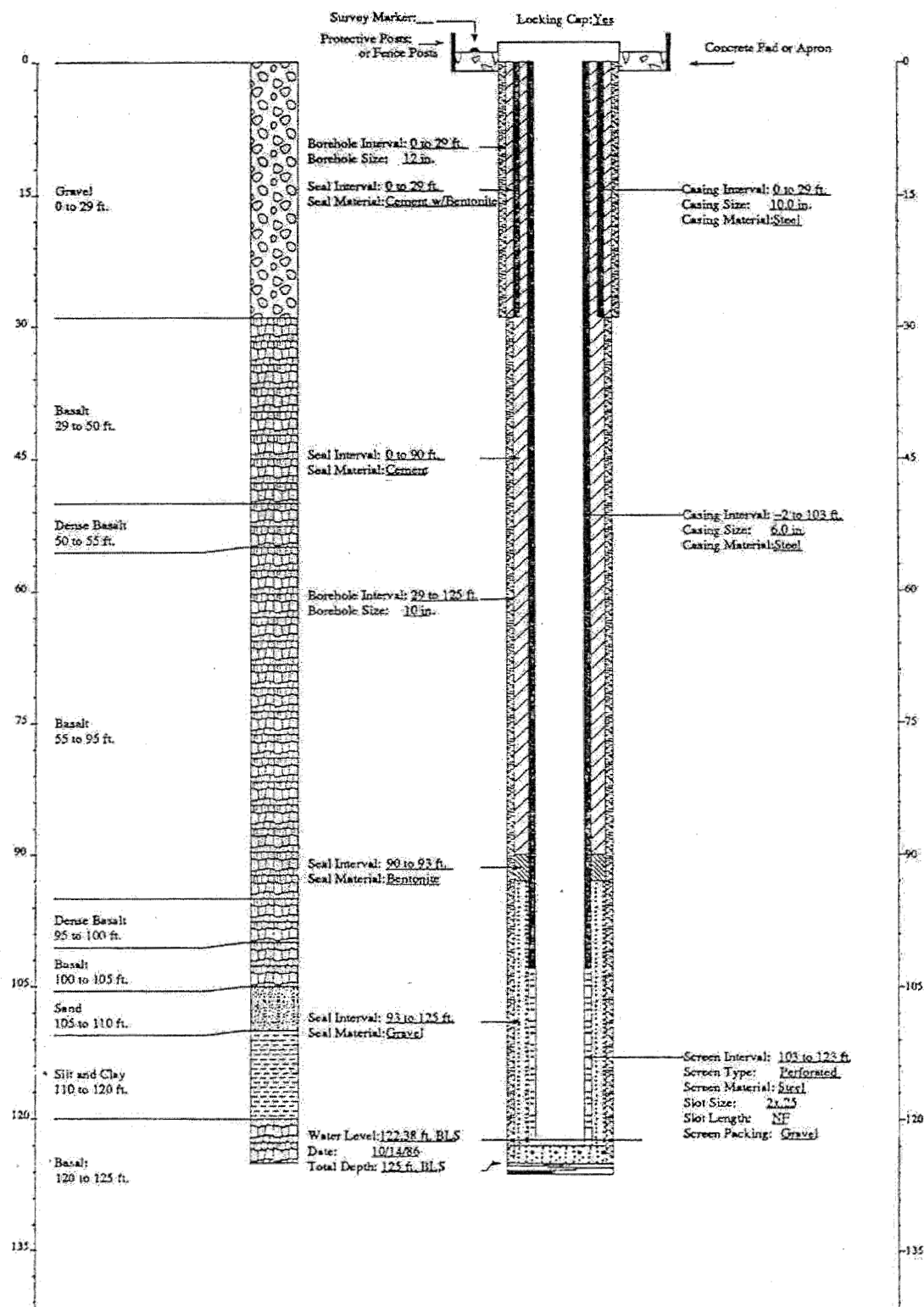
WellName: PW-3

Facility: ICPP
Well Type: Observation Well
Well Status: Active
Year Drilled: 1986
Total Depth: 125

Easting: 506755.32
Northing: 818774.88
Longitude: 1124401.150
Latitude: 435442.840
Completion Depth: 125

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4890.91

09/12/1993
Water Level: 122.38
Water Level Date: 10/14/86
Water Level Access: NF



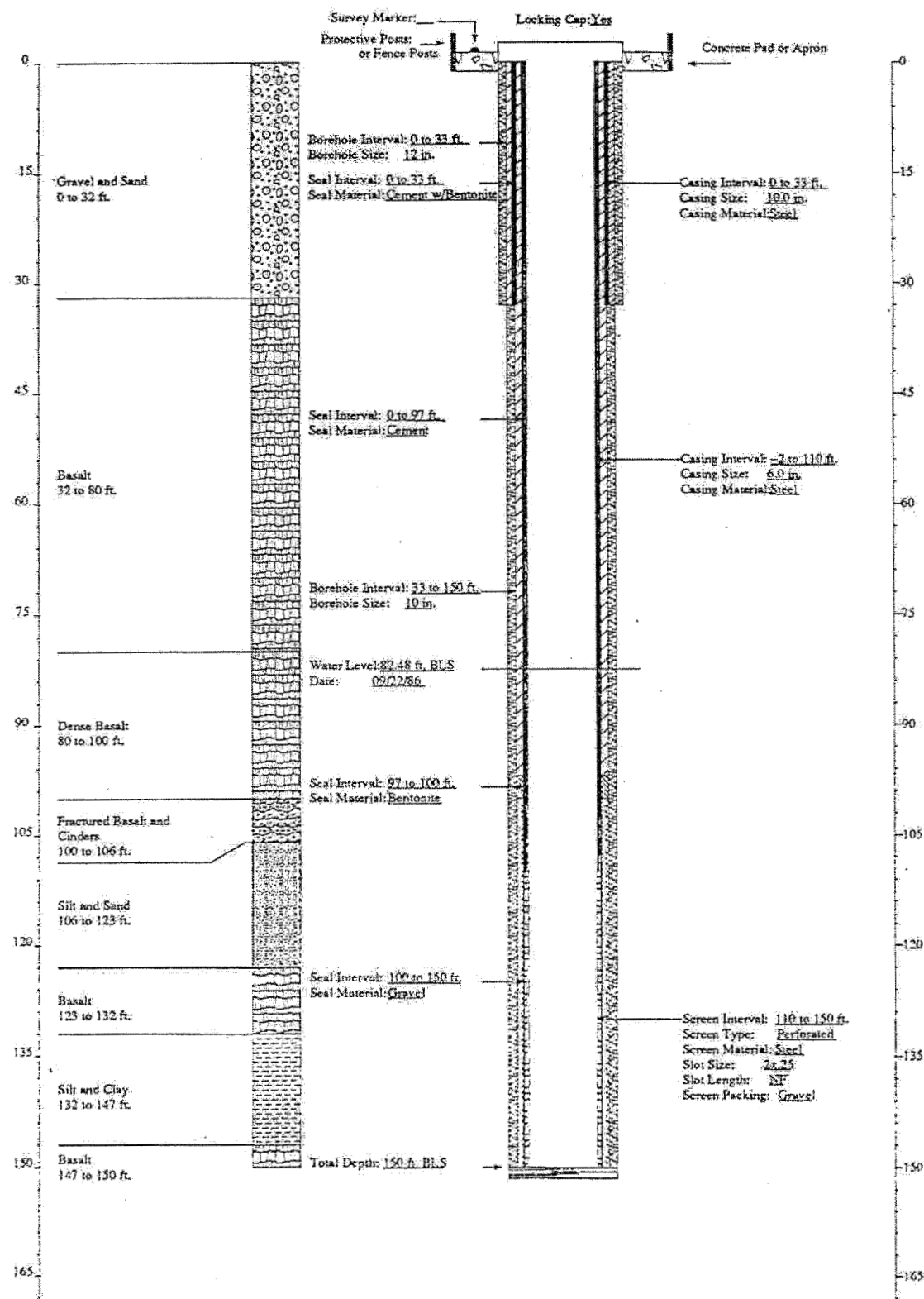
WellName: PW-4

Facility: CPP
Well Type: Monitoring Well
Well Status: Active
Year Drilled: 1986
Total Depth: 150

Easting: 297567.90
Northing: 692195.84
Longitude: 1125549.41
Latitude: 433348.65
Completion Depth: 150

Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4915.8

07/01/1993
Water Level: 82.48
Water Level Date: 09/22/86
Water Level Access: NF

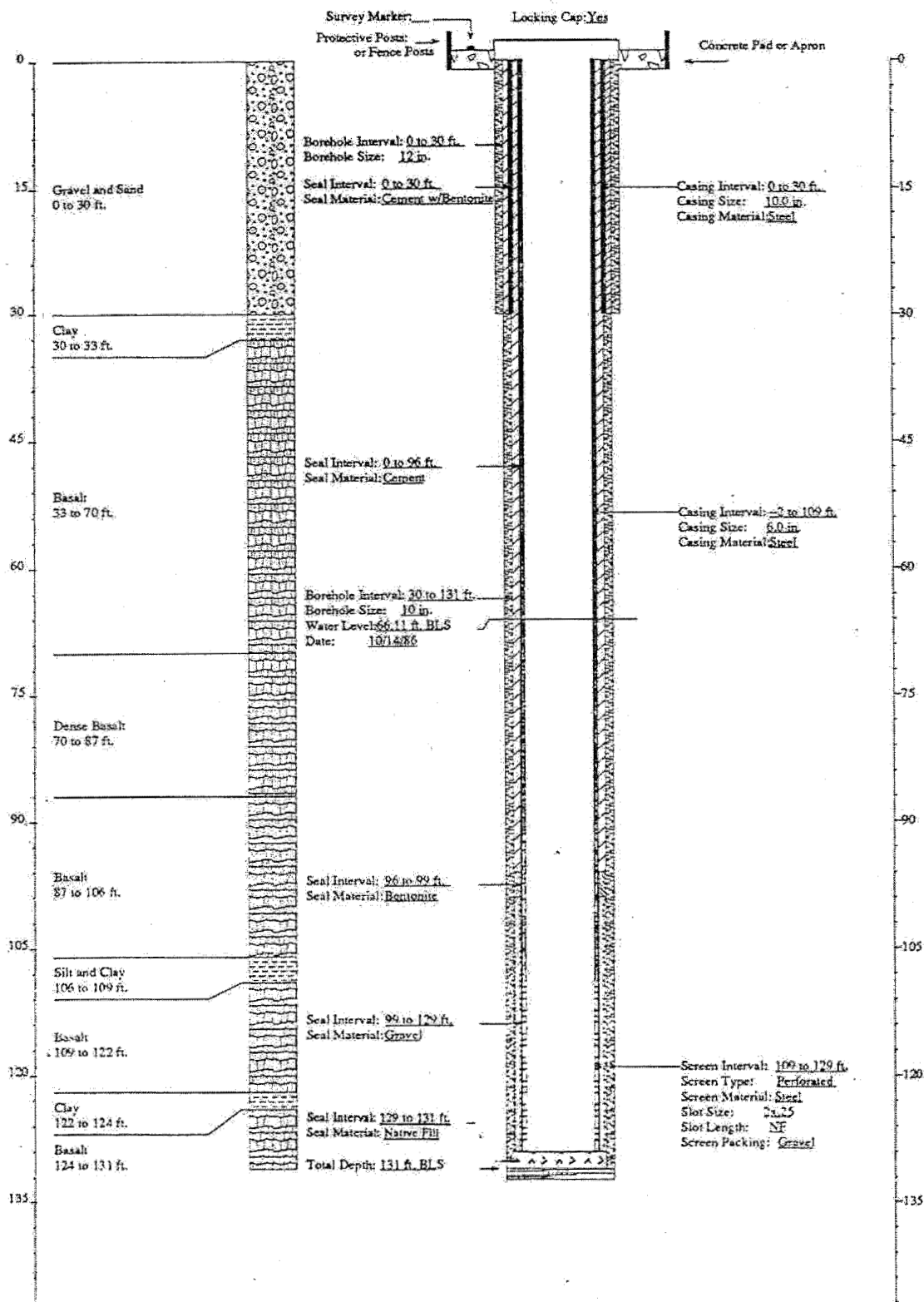


WellName: PW-5

Facility: CPP
Well Type: Monitoring Well
Well Status: Active
Year Drilled: 1986
Total Depth: 131

Easting: 296973.56
Northing: 692195.86
Longitude: 1125557.48
Latitude: 433348.60
Completion Depth: 129
Driller: Denning
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4917.5

07/01/1993
Water Level: 66.11
Water Level Date: 10/14/86
Water Level Access: NF

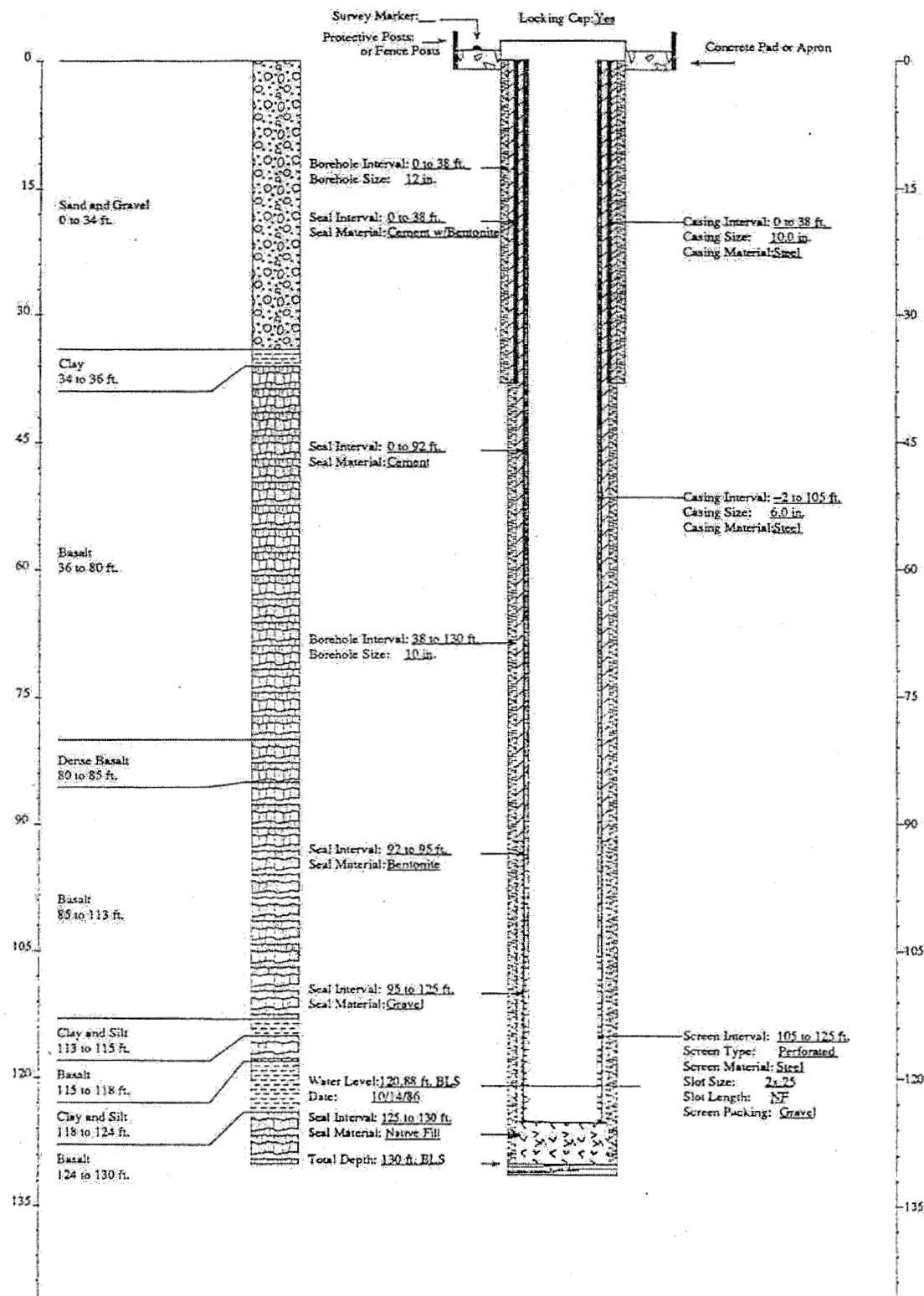


WellName: PW-6

Facility: CPP
Well Type: Observation Well
Well Status: Active
Year Drilled: 1986
Total Depth: 130

Eastings: 295145.71
Northings: 692695.46
Longitude: 1125622.37
Latitude: 433353.37
Completion Depth: 125
Driller: Derming
Geologist: NF
Drilling Method: Air rotary
Drilling Fluid: NF
Land Surface: 4921.4

Water Level: 120.88
Water Level Date: 10/14/86
Water Level Access: NF



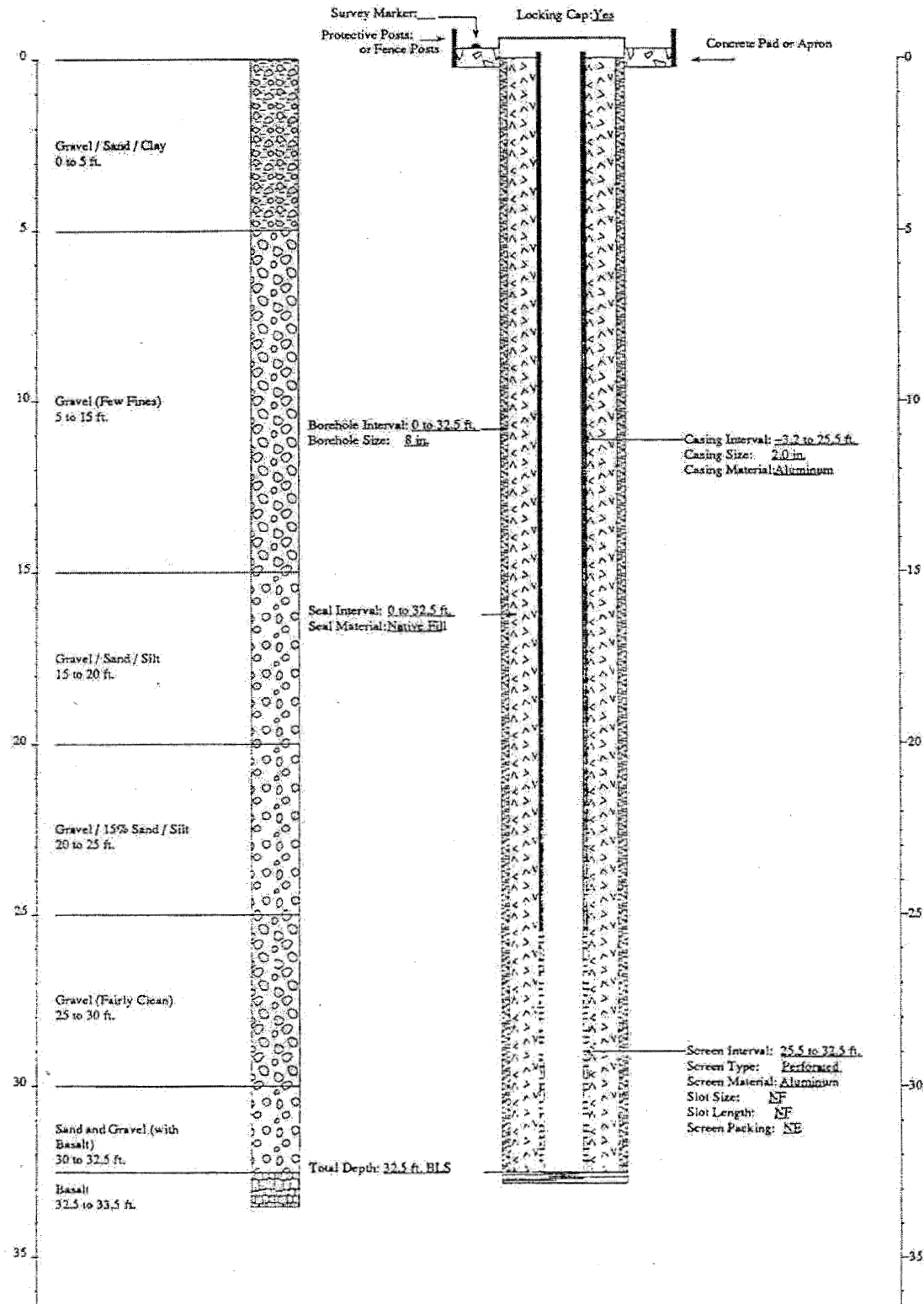
WellName: SWPP-08

Facility: CFP
Well Type: Observation Well
Well Status: Active
Year Drilled: 1983
Total Depth: 32.5

Easting: 297201.66
Northing: 692440.35
Longitude: 1125534.42
Latitude: 433551.04
Completion Depth: 32.5

Driller: USGS
Geologist: NF
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4916.61

06/16/1993
Water Level: NF
Water Level Date: NF
Water Level Access: NF



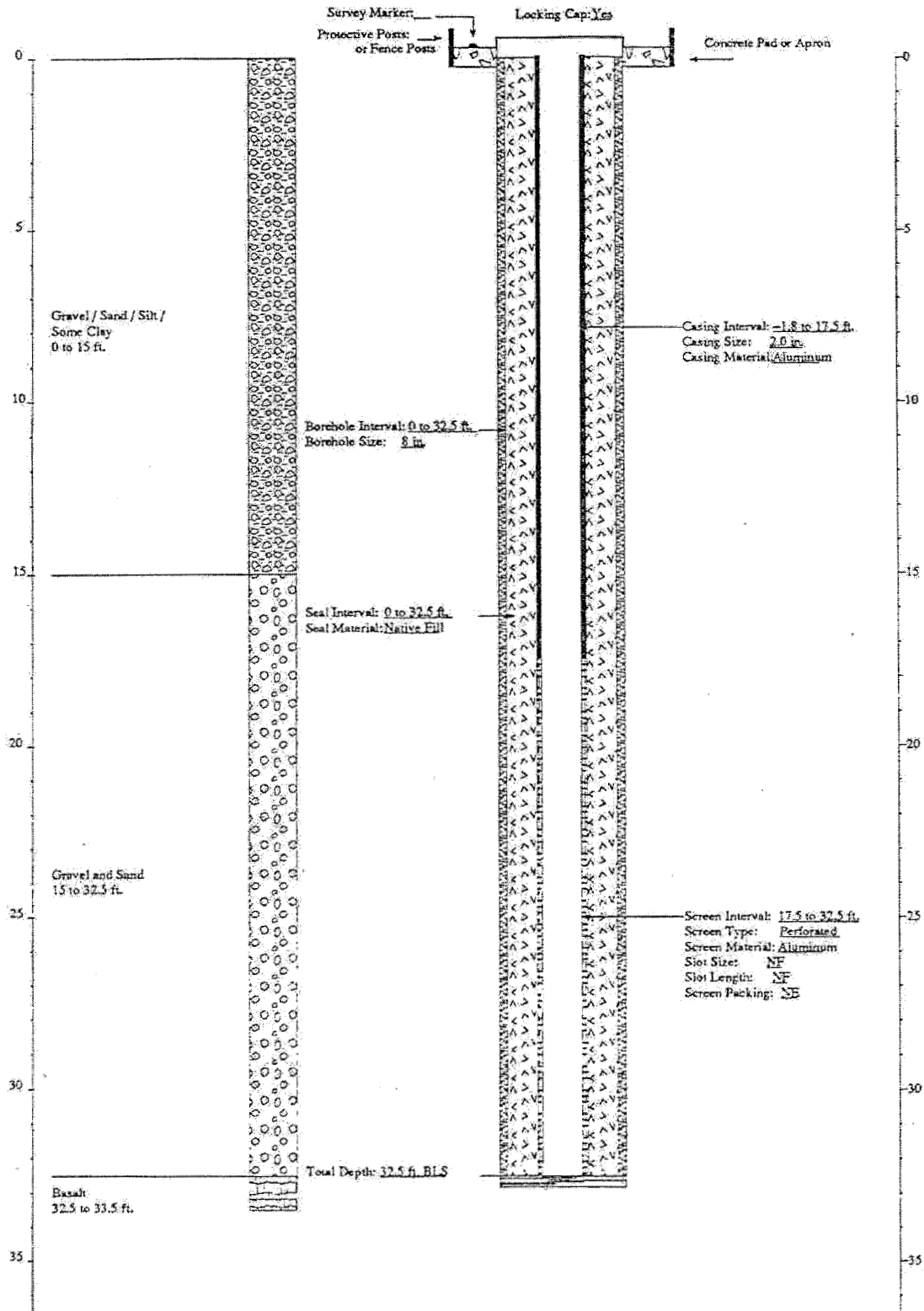
WellName: SWPP-13

Facility: CPP
Well Type: Observation Well
Well Status: Active
Year Drilled: 1983
Total Depth: 32.5

Easting: 297004.01
Northing: 692229.52
Longitude: 1125557.08
Latitude: 433348.94
Completion Depth: 32.5

Driller: USGS
Geologist: NF
Drilling Method: Augering
Drilling Fluid: NF
Land Surface: 4917.23

06/16/1993
Water Level: NF
Water Level Date: NF
Water Level Access: NF

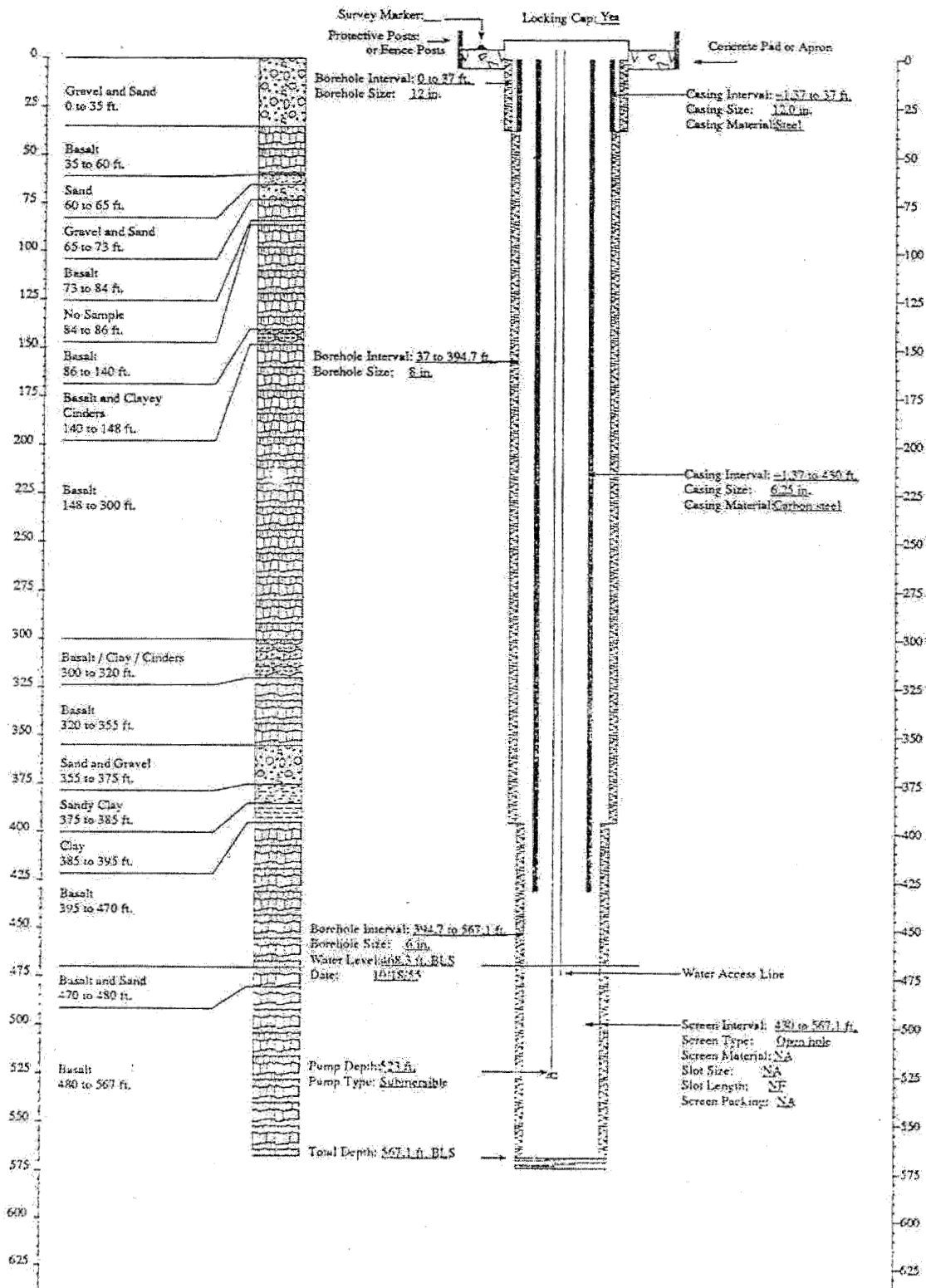


WellName: USGS-036

Facility: CPP
Well Type: Monitoring Well
Well Status: Active
Year Drilled: 1955
Total Depth: 567.1

Easting: 292977.00
Northing: 690358.00
Longitude: 1125651.53
Latitude: 433330.09
Completion Depth: 567.1
Driller: Cope
Geologist: Alan E. Peckham
Drilling Method: Cable tool
Drilling Fluid: NF
Land Surface: 4929.85

06/23/1993
Water Level: 468.3
Water Level Date: 10/18/55
Water Level Access: Line



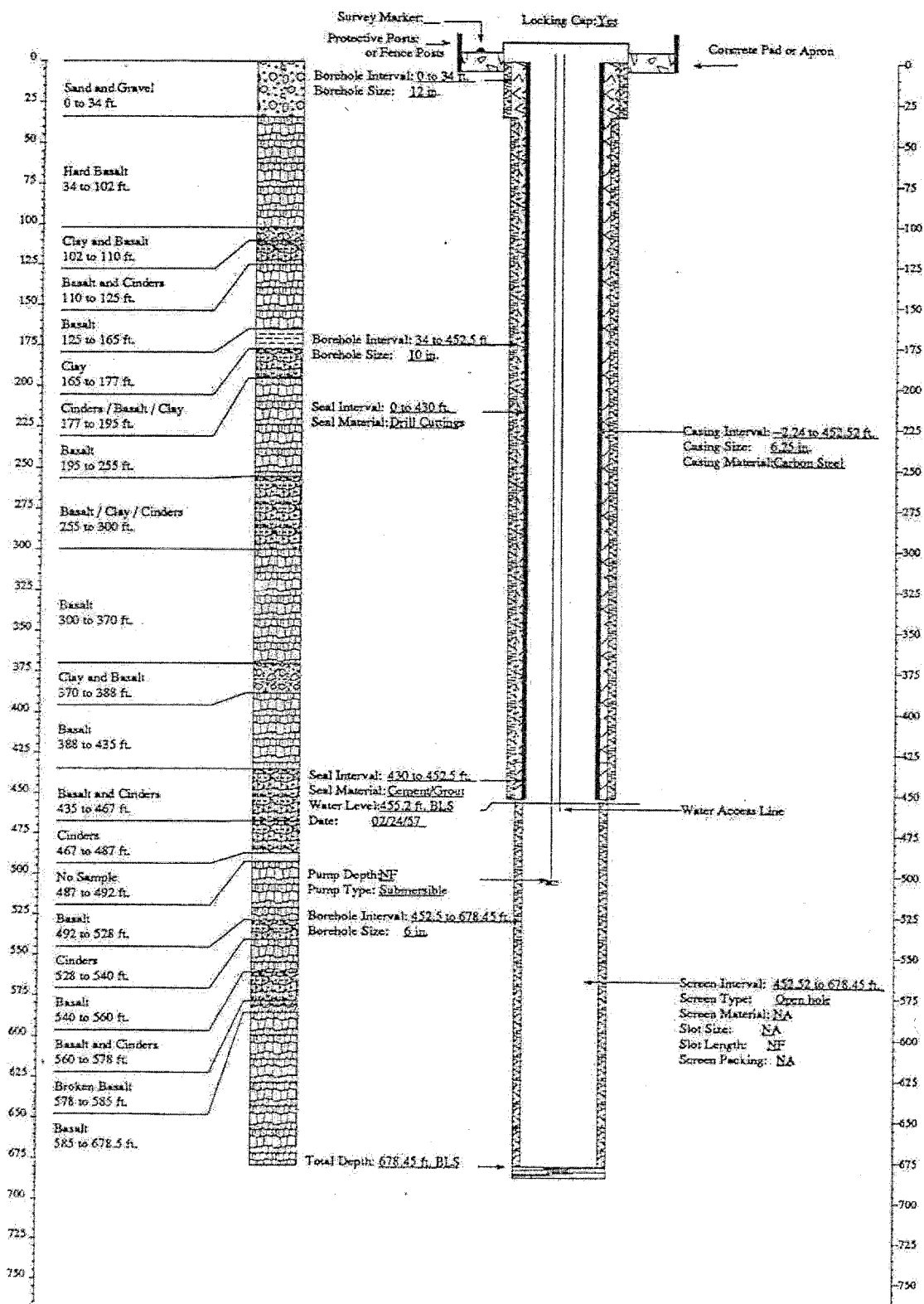
WellName: USGS-042

Facility: ICPP
Well Type: Observation Well
Well Status: Active
Year Drilled: 1957
Total Depth: 678.45

Easting: 295936.00
Northing: 693637.00
Longitude: 1125611.76
Latitude: 433402.74
Completion Depth: 678.45

Driller: Cope
Geologist: R.H.C.
Drilling Method: Cable tool
Drilling Fluid: NF
Land Surface: 4917.85

08/11/1993
Water Level: 455.2
Water Level Date: 02/24/57
Water Level Access: Line

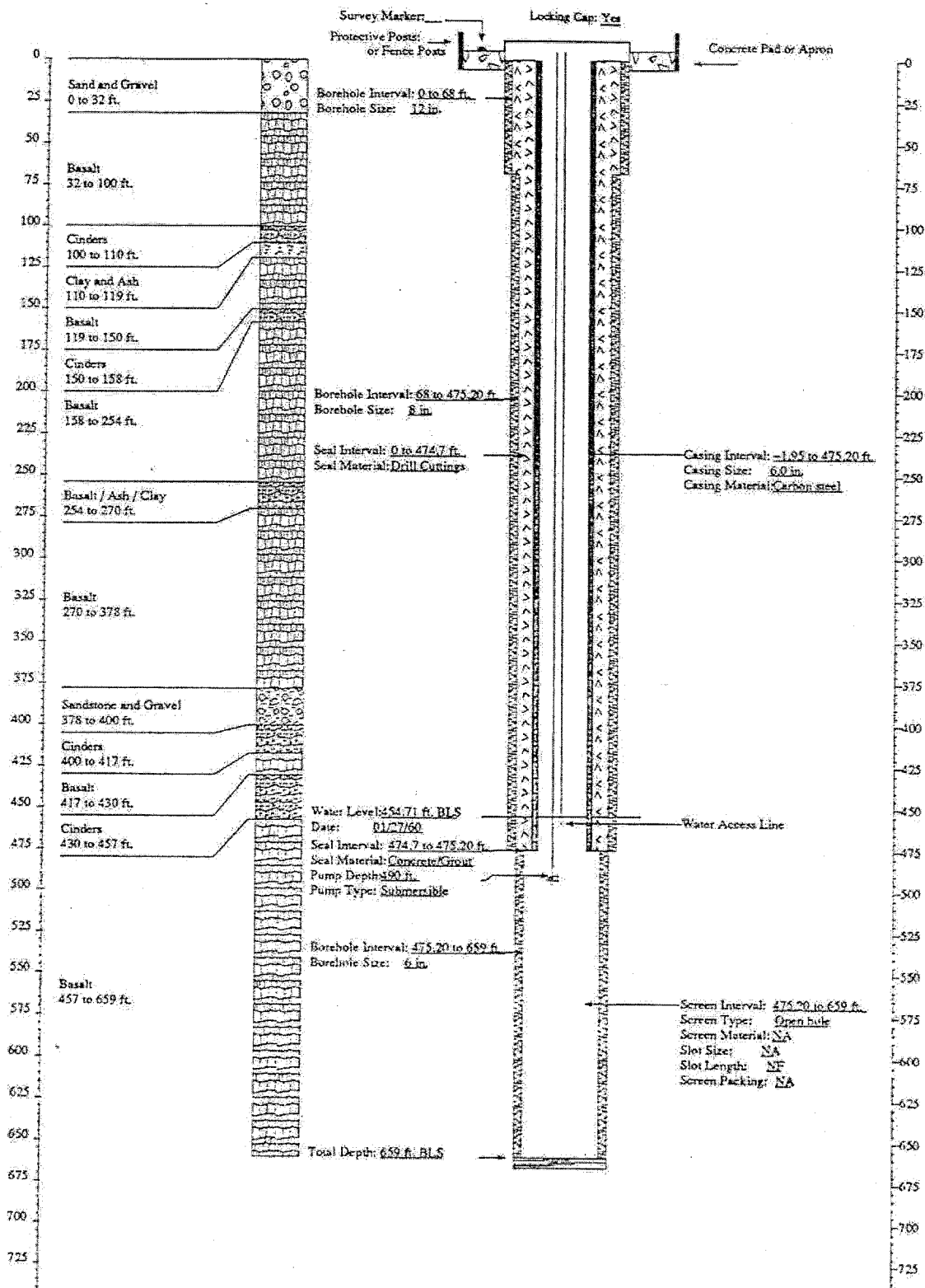


WellName: USGS-051

Facility: CPP
Well Type: Observation Well
Well Status: Active
Year Drilled: 1960
Total Depth: 659

Easting: 296347.88
Northing: 692342.77
Longitude: 1125606.00
Latitude: 433350.00
Completion Depth: 659
Driller: Hopkins
Geologist: F. J. Frank
Drilling Method: NF
Drilling Fluid: NF
Land Surface: 4918.1

06/17/1993
Water Level: 454.71
Water Level Date: 01/27/60
Water Level Access: Line



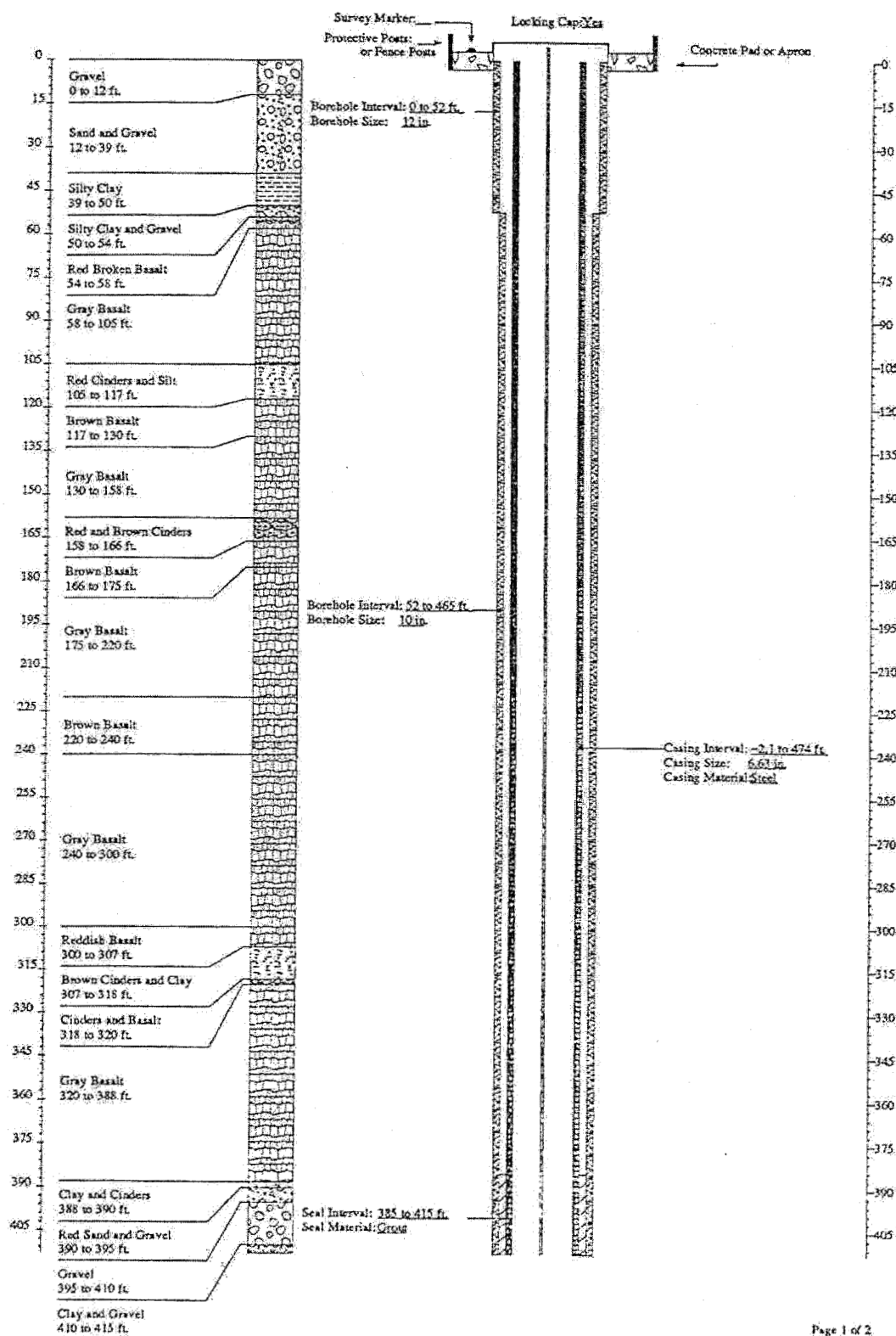
WellName: USGS-057

Facility: ICPP
Well Type: Observation
Well Status: Active
Year Drilled: 1960
Total Depth: 732

Easting: 450822.156
Northing: 691729.699
Longitude: 1125628.9849
Latitude: 433343.70384
Completion Depth: 732

Driller: Andrew
Geologist: NF
Drilling Method: Cable tool
Drilling Fluid: NF
Land Surface: 4925.99

12/21/1993
Water Level: 463
Water Level Date: NF
Water Level Access: Line



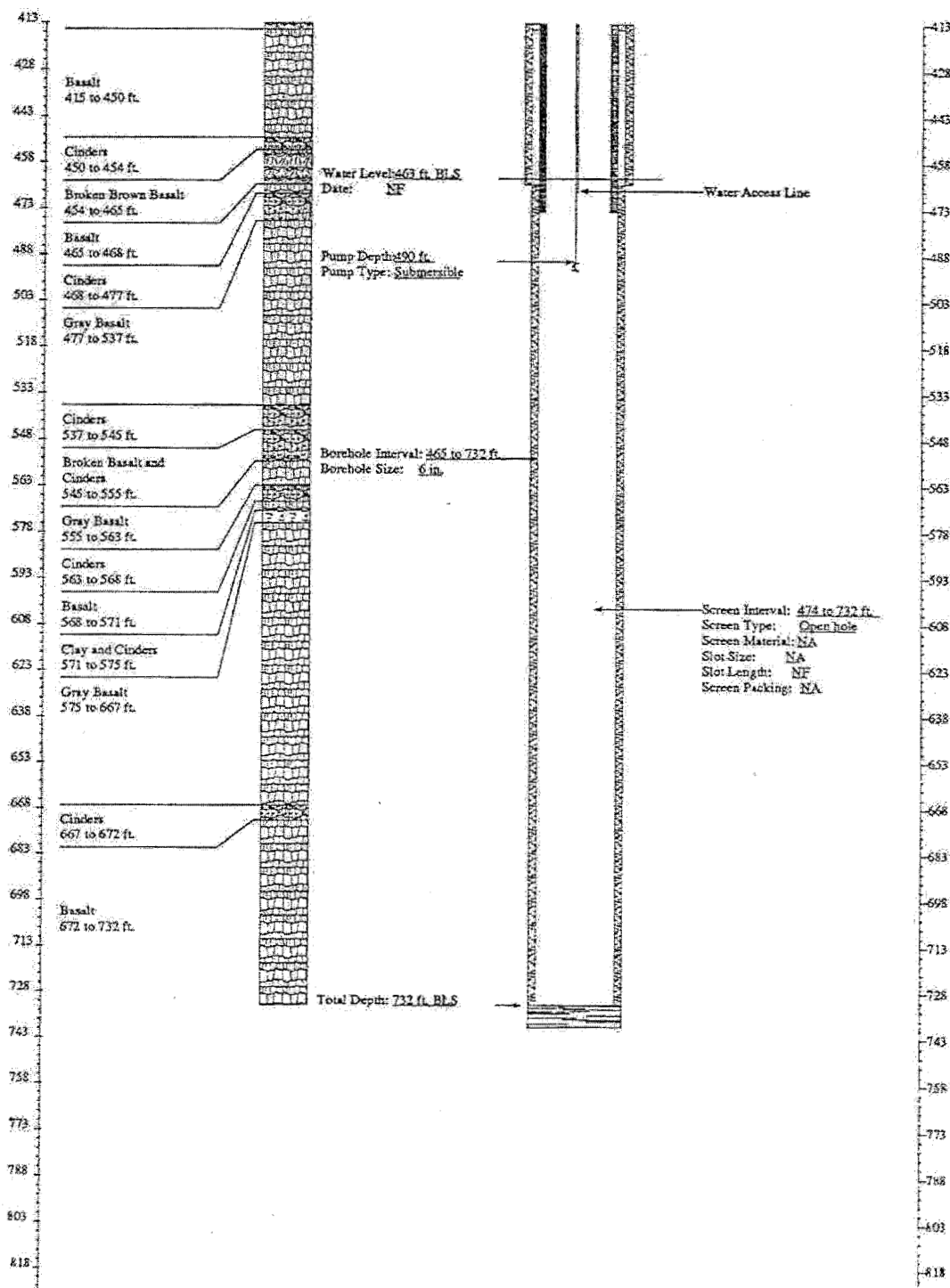
WellName: USGS-057

Facility: ICPP
Well Type: Observation
Well Status: Active
Year Drilled: 1960
Total Depth: 732

Easting: 450822.156
Northing: 691729.699
Longitude: 1125628.9849
Latitude: 433343.70384
Completion Depth: 732

Driller: Andrew
Geologist: NF
Drilling Method: Cable tool
Drilling Fluid: NF
Land Surface: 4925.99

12/21/1993
Water Level: 463
Water Level Date: NF
Water Level Access: Line



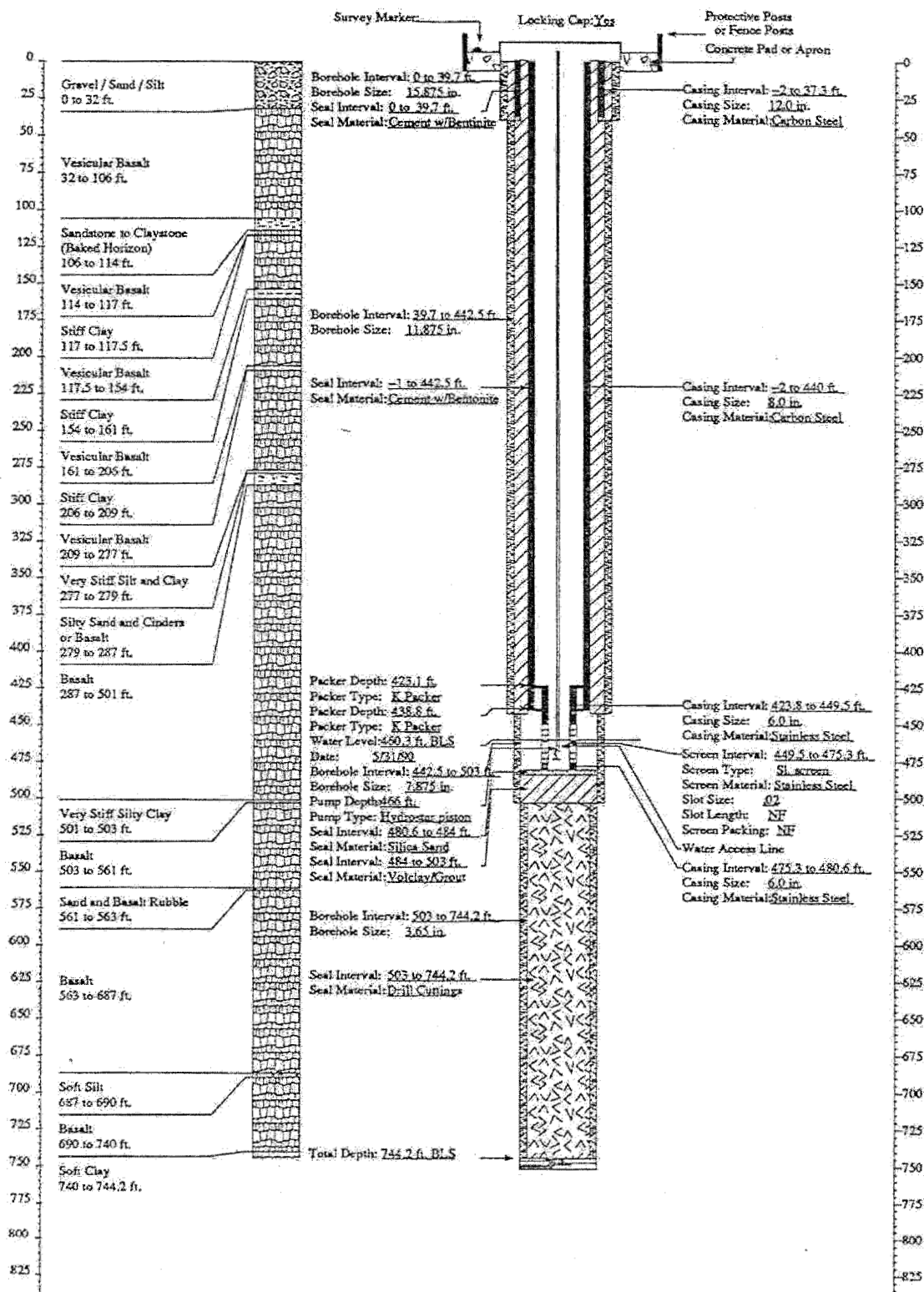
WellName: USGS-123

Facility: ICP
Well Type: Observation
Well Status: Active
Year Drilled: 1990
Total Depth: 744.2

Eastings: 451732.646
Northing: 692497.168
Longitude: 1125616.7165
Latitude: 433351.36684
Completion Depth: 484

Driller: P. C. Exploration
Geologist: NF
Drilling Method: Rotary-coring
Drilling Fluid: NF
Land Surface: 4922.68

04/18/1994
Water Level: 460.3
Water Level Date: 5/31/90
Water Level Access: Line



Appendix C

**Sampling and Analysis Plan Table for Chemical and
Radiological Analysis**

Sample Description					Planned Date	Sample Location				Enter Analysis Types (AT) and Quantity Requested																				
Sampling Activity	Sample Type	Sample Matrix	Cut Type	Sampling Method		Area	Location	Type of Location	Depth (ft)	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20	
ICD800	REG	GROUND WATER	GRAB			ICDF	USGS-123	PERCHED WELL	448.5 - 475.3		1	1	1	1	1	1	1	1	1											
ICD801	REG	GROUND WATER	GRAB			ICDF	SRPA-1	AQUFER WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD802	REG	GROUND WATER	GRAB			ICDF	SRPA-2	AQUFER WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD803	REG	GROUND WATER	GRAB			ICDF	SRPA-3	AQUFER WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD804	REG	GROUND WATER	GRAB			ICDF	SRPA-4	AQUFER WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD805	REG	GROUND WATER	GRAB			ICDF	SRPA-5	AQUFER WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD806	REG	GROUND WATER	GRAB			ICDF	PW-1	PERCHED WELL	100 - 120		1	1	1	1	1	1	1	1	1											
ICD807	REG	GROUND WATER	GRAB			ICDF	PW-6	PERCHED WELL	105 - 125		1	1	1	1	1	1	1	1	1											
ICD808	REG	GROUND WATER	GRAB			ICDF	PW-16M	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD809	REG	GROUND WATER	GRAB			ICDF	PW-15D	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD810	REG	GROUND WATER	GRAB			ICDF	PW-16S	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD811	REG	GROUND WATER	GRAB			ICDF	PW-16M	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD812	REG	GROUND WATER	GRAB			ICDF	PW-16D	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD813	REG	GROUND WATER	GRAB			ICDF	PW-17M	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD814	REG	GROUND WATER	GRAB			ICDF	PW-17D	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD815	REG	GROUND WATER	GRAB			ICDF	PW-16S	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											
ICD816	REG	GROUND WATER	GRAB			ICDF	PW-16M	PERCHED WELL	TBD		1	1	1	1	1	1	1	1	1											

The sampling activity displayed on this table represents the first six characters of the sample identification number. The complete sample identification number (10 characters) will appear on field guidance forms and sample labels.

Comments:

Total Metals (TAL) Filtered = Calcium, Magnesium, Potassium, and Sodium

Duplicates, MS/MSD, and Trip Blanks will be collected 1 in every 20 samples. For unfiltered metals collect one duplicate from perched water.

Performance Evaluation Sample will be collected only once during the four baseline sampling events

Residue will be collected only if not using dedicated equipment

Field blanks will be collected 1/20 samples or once per 4 sampling days, whichever is more frequent.

Total Metals - Appendix IX TAL (Filtered) will be filtered in the field.

Contingencies:

Analysis Suite #3 includes: Tritium, Iodine-129

Analysis Suite #3 includes: Tritium, Iodine-129

Analysis Suite #1 includes: Bicarbonate, Nitrate, Sulfate

Analysis Suite #2 includes: Gamma Spec, Pu-Is0, U-Is0

[illegible]

100

[illegible]

The camping activity displayed on this table represents the first six characters of the sample identification number.

The complete sample identification number (10 characters) will appear on field identification forms and sample labels.

Summary

Comments:

Continued.

Total Metals (TAL) Filtered = Calcium, Magnesium, Potassium, and Sodium
Duplicates, MSASD, and Trip Blanks will be collected 1 in every 20 samples. For unfiltered metals collect one duplicate from each water.

Performance Evaluation Sample will be collected only once during the four base five sampling events.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	52
--	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----

[illegible]

© 2006 The Author
Journal compilation © 2006 Blackwell Publishing Ltd

[illegible]

Continuances:

Analysis Suites:

Analysis Suite #3 includes: Tridium, Lockna-129

Analysis Suite #1 includes: Bacteriostatic Nitrate Sulfates

ANALYSIS GUIDE #1 INCLUDES: GENERAL SCORING GUIDE, 11/11/18

Analyses done by Z. H. Kopp, Gamma Spec. Inc., U.S.A.

Plan Table Number: K02F558ANNUAL

SAP Number:

Date: 04/22/2012

Plan Table Revision: 1.0

Project: K02F GROUNDWATER - SEMIANNUAL (JUNE & DECEMBER)

Project Manager: CHAU, L. S.

SAC Contact: KIRCHNER, D. R.

Sample Description				Planned Date	Sample Location			Enter Analysis Types (AT) and Quantity Requested																				
Sampling Activity	Sample Type	Sample Matrix	Code Type		Sampling Method	Area	Location	Type of Location	Depth (ft)	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19
SEM000	REG	GROUND WATER	GRAB		K02F	UGS5-123	PERCHED WELL	449.5 - 475.3																				
SEM001	REG	GROUND WATER	GRAB		K02F	SRPA-1	AQUIFER WELL	TBD																				
SEM002	REG	GROUND WATER	GRAB		K02F	SRPA-2	AQUIFER WELL	TBD																				
SEM003	REG	GROUND WATER	GRAB		K02F	SRPA-3	AQUIFER WELL	TBD																				
SEM004	REG	GROUND WATER	GRAB		K02F	SRPA-4	AQUIFER WELL	TBD																				
SEM005	REG	GROUND WATER	GRAB		K02F	SRPA-5	AQUIFER WELL	TBD																				
SEM006	REG	GROUND WATER	GRAB		K02F	PW-1	PERCHED WELL	100 - 120																				
SEM007	REG	GROUND WATER	GRAB		K02F	PW-4	PERCHED WELL	165 - 175																				
SEM008	REG	GROUND WATER	GRAB		K02F	PW-16M	PERCHED WELL	TBD																				
SEM009	REG	GROUND WATER	GRAB		K02F	PW-120	PERCHED WELL	TBD																				
SEM010	REG	GROUND WATER	GRAB		K02F	PW-165	PERCHED WELL	TBD																				
SEM011	REG	GROUND WATER	GRAB		K02F	PW-18M	PERCHED WELL	TBD																				
SEM012	REG	GROUND WATER	GRAB		K02F	PW-180	PERCHED WELL	TBD																				
SEM013	REG	GROUND WATER	GRAB		K02F	PW-17M	PERCHED WELL	TBD																				
SEM014	REG	GROUND WATER	GRAB		K02F	PW-170	PERCHED WELL	TBD																				
SEM015	REG	GROUND WATER	GRAB		K02F	PW-165	PERCHED WELL	TBD																				
SEM016	REG	GROUND WATER	GRAB		K02F	PW-18M	PERCHED WELL	TBD																				

The sampling activity displayed on this table represents the first six characters of the sample identification number. The complete sample identification number (10 characters) will appear on field guidance forms and sample labels.

AT1: Analysis Suite #1

AT2: VOCs (except BTEX)

AT3: Toxic Metals (TAL) - Filtered

AT4: Toxic Metals (TAL) - Filtered

AT5: Toxic Metals (TAL) - Filtered

AT6: Toxic Metals (TAL) - Filtered

AT7: Toxic Metals (TAL) - Filtered

AT8: Toxic Metals (TAL) - Filtered

AT9: Toxic Metals (TAL) - Filtered

AT10: Toxic Metals (TAL) - Filtered

AT11: Toxic Metals (TAL) - Filtered

AT12: Toxic Metals (TAL) - Filtered

AT13: Toxic Metals (TAL) - Filtered

AT14: Toxic Metals (TAL) - Filtered

AT15: Toxic Metals (TAL) - Filtered

AT16: Toxic Metals (TAL) - Filtered

AT17: Toxic Metals (TAL) - Filtered

AT18: Toxic Metals (TAL) - Filtered

AT19: Toxic Metals (TAL) - Filtered

AT20: Toxic Metals (TAL) - Filtered

Analysis Suite #1 includes TO-15, Se-40

Analysis Suite #2 includes TO-15, Se-40

Analysis Suite #3 includes TO-15, Se-40

Analysis Suite #4 includes TO-15, Se-40

Analysis Suite #5 includes TO-15, Se-40

Analysis Suite #6 includes TO-15, Se-40

Analysis Suite #7 includes TO-15, Se-40

Analysis Suite #8 includes TO-15, Se-40

Analysis Suite #9 includes TO-15, Se-40

Analysis Suite #10 includes TO-15, Se-40

Comments:

Total Metals (TAL) Filtered = only Total Chromium and Manganese

Duplicate, Total Metals, MS/MSD, and Trip Blanks will be collected 1 in every 20 samples

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Blanks will be collected only from using dedicated equipment

Sampling and Analysis Plan Table for Chemical and Radiological Analysis

Plan Table Number: CDF-SEMANNV100

SAP Number:

Date: 04/02/2012

Plan Table Revision: 1.0

Project: ICDP GROUNDWATER - SEMANNV (JUNE & DECEMBER)

Project Manager: CARILL, S.

SMD Contact: KROCHER, D. R.

Sample Description					Remed Date	Sample Location				Enter Analysis Types (AT) and Quantity Requested																			
Sampling Activity	Sample Type	Sample Matrix	Cell Type	Sampling Method		Area	Location	Type of Location	Depth (ft)	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
SEM17	RES	GROUND WATER	GRAB			ICDF	PW-18D	PERCHED WELL	TBD	1	1	1																	
SEM18	RES	GROUND WATER	GRAB			ICDF	PW-19S	PERCHED WELL	TBD	1	1	1																	
SEM19	RES	GROUND WATER	GRAB			ICDP	PW-15M	PERCHED WELL	TBD	1	1	1																	
SEM20	RES/DOC	GROUND WATER	DUP			ICDF	PW-18D	PERCHED WELL	TBD	1	1	1																	
SEM21	RES	GROUND WATER	GRAB			ICDF	PW-20S	PERCHED WELL	TBD	1	1	1																	
SEM22	RES	GROUND WATER	GRAB			ICDF	PW-20M	PERCHED WELL	TBD	1	1	1																	
SEM23	RES	GROUND WATER	GRAB			ICDF	PW-20D	PERCHED WELL	TBD	1	1	1																	
SEM24	RES	GROUND WATER	GRAB			ICDF	SUMP	PRIMARY LEACHATE	NA	1	1	1																	
SEM25	QC	WATER	FLK			ICDF	QC	FIELD BLANK	NA	2	2	2																	
SEM26	QC	WATER	FLK			ICDF	QC	TRIP BLANK	NA			2																	
SEM27	QC	WATER	RUST			ICDF	QC	RINSE	NA	1	1	1																	
SEM28	QC	GROUND WATER	DUP			ICDF	TBD	DUPLICATES	TBD	2	2	2																	
SEM29	QC	GROUND WATER	GRAB			ICDF	TBD	MIXED	TBD			2																	

The sampling activity displayed on this table represents the first six characters of the sample identification number. The complete sample identification number (10 characters) will appear on field guidance forms and sample labels.

AT1: Analysis Subst #1

AT2: VOCs (depends on TDS)

AT3: Total Metals (TAL) - Filtered

AT4:

AT5:

AT6:

AT7:

AT8:

AT9:

AT10:

Analysis Subst:

Analysis Subst #1 includes TS-95, SS-95

Configuration:

Comments:

Total Metals (TAL) Filtered - only Total Chromium and Mercury

Duplicate, Field Blank, (MS/MS), and Trip Blank will be collected 1 in every 20 samples

Residue will be collected only if not using dedicated equipment

Sampling and Analysis Plan Table for Chemical and Radiological Analysis

Plan Table Number: KOTF-S&HQ

SAP Number:

Date: 04/03/2012 Plan Table Revision: 1.0 Project: KOTF GROUNDWATER - EVERY 25 YEARS

Project Manager: CAHILL, S.

S&HQ Contact: KRECHER, D. R.

Sample Description					Sample Location					Enter Analysis Types (AT) and Quantity Requested																			
Sampling Activity	Sample Type	Sample Matrix	Colt Type	Sampling Method	Planned Date	Area	Location	Type of Location	Depth (ft)	AT1	AT2	AT3	AT4	AT5	AT6	AT7	AT8	AT9	AT10	AT11	AT12	AT13	AT14	AT15	AT16	AT17	AT18	AT19	AT20
NTM017	REG	GROUND WATER	GRAB			KOTF	PW-100	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM018	REG	GROUND WATER	GRAB			KOTF	PW-105	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM019	REG	GROUND WATER	GRAB			KOTF	PW-104	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM020	REG	GROUND WATER	GRAB			KOTF	PW-100	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM021	REG	GROUND WATER	GRAB			KOTF	PW-205	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM022	REG	GROUND WATER	GRAB			KOTF	PW-204	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM023	REG	GROUND WATER	GRAB			KOTF	PW-200	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM024	REG	GROUND WATER	GRAB			KOTF	SUMP	PHILLY LEACHATE	NA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM025	QC	WATER	FLK			KOTF	QC	FIELD BLANK	NA	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NTM026	QC	WATER	FLK			KOTF	QC	TRIP BLANK	NA	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NTM027	QC	WATER	RMET			KOTF	QA	RINSE	NA	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
NTM028	QC	GROUND WATER	DUP			KOTF	TBD	SUPPLIES	TBD	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NTM029	QC	GROUND WATER	GRAB			KOTF	TBD	MMSD	TBD	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
NTM030	QC	GROUND WATER	PES			KOTF	KOTF-1	PERCHED WELL	TBD	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

The sampling activity displayed on this table represents the first six characters of the sample identification number. The complete sample identification number (10 characters) will appear on field guidance forms and sample labels.

AT1: Pu-239/240

AT2: Analysis Suite #1

AT3: VOCs (Appendix K TML)

AT4: Chloride

AT5: To-99

AT6: SVOCs (Appendix K TML)

AT7: Total Metals (TML), Filtered

AT8: Se-80

AT9: Indium-125

AT10: Tritium/Deuterium - Filtered

Analysis Suite:

Analysis Suite #1 includes: Barium, Boron, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Mercury, Nickel, Nitrate, Nitrite, Selenium, Silver, Strontium, Sulfate, Tantalum, Tellurium, Thallium, Vanadium, Zirconium

Comments:

Total Metals (TML): Filtered = only Total Chromium and Mercury

Total Metals - Filtered = Cadmium, Magnesium, Potassium, and Sodium

Supplies: Field Blanks, NTA/MSD, and Trip Blanks will be collected 1x every 20 samples

Blanks will be collected only if not using dedicated equipment

Continued